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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/575,147	04/07/2006	You Moon Jeon	YPL0263US	7284
23413 7590 04/21/2010 CANTOR COLBURN, LLP 20 Church Street 22nd Floor Hartford, CT 06103				
EXAMINER KOSACK, JOSEPH R				
ART UNIT 1626		PAPER NUMBER		
NOTIFICATION DATE 04/21/2010		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

### Office Action Summary

**Application No.**

10/575,147

**Applicant(s)**

JEON ET AL.

**Examiner**

Joseph R. Kosack

**Art Unit**

1626

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 February 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 and 9-13 is/are pending in the application.
- 4a) Of the above claim(s) 4 and 11-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-7, 9 and 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-06)
- Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Claims 1-7 and 9-13 are pending in the instant application file.

#### ***Amendments***

The amendment filed on February 23, 2010 has been acknowledged and has been entered into the instant application file.

#### ***Claim Rejections - 35 USC § 103***

Claims 1-3, 5-7, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gelling et al. (USPN 6,153,800) in view of van der Slot et al. (*Organometallics*, 2002, 3873-3883)

The Applicant has traversed the rejection on the grounds that the references do not teach all the elements of the claims and therefore there is no motivation to combine, that Van der Slot teach away from using a monodentate ligand, and that the declaration shows that the combination of a monodentate ligand with a bidentate ligand reduces the catalytic activity.

The Examiner is not persuaded. Firstly, the Applicant has not stated which component is missing from the combination of the references and the rejection of record. While the Applicant concludes that Gelling does not correct for the deficiency of Van der Slot, the Examiner believes that Gelling does correct the deficiency of Van der Slot. For instance, as stated in the rejection, Gelling et al. teach that adding a monodentate ligand to a bidentate ligand catalyst for hydroformylation increases the life significantly of the catalyst, improves selectivity, and protects the bidentate ligand from

degradation. See column 1, line 52 to column 2, line 6. This teaching is irrespective of the bidentate ligand used, even though the ligand of Example 1 is preferred.

The teaching in Van der Slot et al. cited by the Applicant to dissuade the person of ordinary skill in the art to making the change is drawn to completely replacing the bidentate ligand with a monodentate ligand, not making a mix of bidentate and monodentate ligand. The person of ordinary skill in the art would instead be motivated by the teachings of Gelling that the more expensive bidentate ligand would be protected by the presence of the monodentate ligand. Since the prior art teaches the limitation and the motivation to make the modification to Van der Slot et al., the evidence in the prior art is stronger than the evidence presented in the declaration of Donghyun Ko submitted on April 13, 2009

Therefore, the Examiner must maintain the instant rejection.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

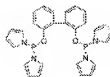
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

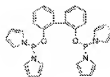
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 5-7, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over van der Slot et al. (*Organometallics*, 2002, 3873-3883) in view of Gelling et al. (USPN 6,153,800).

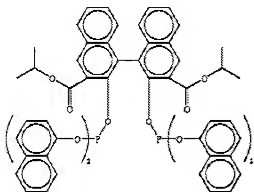
The instant claims are drawn to a catalyst composition comprising a compound of Formula 1 [BPO-P(PyI)<sub>2</sub>], Formula 2, and Formula 3 [Rh(acac)(CO)<sub>2</sub>].



van der Slot et al. teach the composition of  with Rh(acac)(CO)<sub>2</sub> for hydroformylation. See page 3875 and Table 3 on page 3876, especially the top entry.

van der Slot et al. do not teach the use of a monodentate ligand in the catalyst composition or the exact ratios as required by claim 9.

Gelling et al. teach a catalyst composition for hydroformylation with



as the bidentate ligand, tri-(ortho-tolyl)phosphine as the monodentate ligand, and  $\text{Rh}(\text{acac})(\text{CO})_2$  as the metal catalyst. See Example 1, columns 10-12. R<sub>3</sub>, R<sub>4</sub>, and R<sub>5</sub> would be substituted phenyl. One of ordinary skill in the art, with respect to the monodentate ligand, would envision replacing the tri-(ortho-tolyl)phosphine with triphenylphosphine as it is a possibility mentioned by Gelling et al. in column 2, lines 47-62.

Gelling et al. also teach that adding a monodentate ligand to a bidentate ligand catalyst for hydroformylation increases the life significantly of the catalyst, improves selectivity, and protects the bidentate ligand from degradation. See column 1, line 52 to column 2, line 6. This teaching is irrespective of the bidentate ligand used, even though the ligand of Example 1 is preferred.

As to the catalyst ratios, "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In *re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)

Therefore, one of ordinary skill in the art would take the catalyst composition of van der Slot et al. and modify it by adding the monodentate ligand of Gelling et al. with a

reasonable expectation of success. The motivation to combine the references has been shown above with the teachings of Gelling et al. clearly showing how to improve the lifecycle of the bidentate ligand by adding a monodentate ligand.

### ***Conclusion***

Claims 1-3, 5-7, 9 and 10 are rejected.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph R. Kosack whose telephone number is (571)272-5575. The examiner can normally be reached on M-Th 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on (571)-272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph R Kosack/  
Examiner, Art Unit 1626